NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

OH-ENG-235a
(revised12/00)

COMPOSTING DESIGN WORKSHEET
FOR BINS

Landowner:		County:	
Designer:	Date:	Checked:	Date:

1. Calculate primary & secondary composting cycle times as a function of the design weight (see tables 1-3):

   Primary cycle time (T_1) = 5.0 x (_____) =_____ days
   Design Weight (W_1, largest animal anticipated) (10 day min)

   Secondary cycle time (T_2) = 1/3 x _____ = _____ days
   (Primary cycle time) (10 day min)

2. Calculate Primary, Secondary & Storage Volumes (or use Tables 1 through 3):

   Primary Volume = 0.2 x _____ x _____ =_____cu ft
   lb loss / day (ADL) Primary Cycle Time (T_1)

   Secondary Volume = 0.2 x _____ x _____ =_____cu ft
   lb loss / day(ADL) Secondary Cycle Time (T_2)

   Storage Volume = 0.2 x _____ x 30 days (T_3) =_____cu ft
   lb loss / day (ADL)

   Alternate: (use with large animals), W_1 = weight of largest animal

   Primary Volume = 0.2 x W_1 (lb) x Integer (ADL * T_1/ W_1) = _____cu ft

   Secondary Volume = 0.2 x W_1 (lb) x Integer (ADL * T_2/ W_1) =_____cu ft

   Storage Volume = 0.2 x W_1 (lb) x Integer (ADL * T_3/ W_1) = _____cu ft

3. Calculate number of bins with a minimum of two primary, one secondary, and one storage bin required. *In doing calculations always round to the nearest whole number.*

Bin Volumes versus width and length. Depth of compost = 5 ft.

Width / Length	**4**	**6**	**8**	**10**	**12**	**14**	**16**
	Bin Vol. (ft^3)						
4	80	120	160				
6	120	180	240	300	360		
8	160	240	320	400	480	560	640
10		300	400	500	600	700	800
12		360	480	600	720	840	960
14		420	560	700	840	980	1120
16		480	640	800	960	1120	1280

Number of Primary Bins - Choose bin dimensions within the capability of the loading equipment. Also account for the size of the animals to maintain 6" to 12" clearance between the carcasses and the bin walls (Minimum vol.). The bin width should be at least 2 ft greater than the loader bucket width. The equation for calculating the number of primary bins includes one additional bin to allow placing additional carcasses during the primary curing stage. *A minimum of two primary bins is required.*

Trial Bin Volume = _____ (Width (ft)) x _____ (length (ft)) x 5 ft = _____ cu ft

Number of Primary Bins = _____ (Primary Volume (step 2)) / _____ (Trial Bin Volume) + 1 Bin = _____ Bins

Number of Secondary Bins - Select secondary bin volume. *Each secondary bin must be ³ to the volume of the primary bin since volume reduction during the compost cycle is neglected.* Minimum of 1 secondary bin per 3 primary bins (The 3:1 ratio requires immediate utilization or separate storage of compost following the secondary cycle.)

Number of Secondary Bins = Secondary volume (step 2) / selected secondary bin volume

Number of Secondary Bins = _____ (Secondary Volume. (step 2)) / _____ (Secondary Bin Volume) = _____ Bins

Number of Storage Bins - Select storage bin size. *Volume of each storage bin must be ³ to secondary bin volume.*

Number of Bins for Compost Storage = Storage volume (step 2) / selected storage bin volume

Number of Storage Bins = _____ (Storage Volume (step 2)) / _____ (Storage Bin Volume) = _____ Bins

3. Calculate annual sawdust requirements. (This assumes no reintroduction of finished compost to the primary bin, however it is recommended that up to 50% of fresh sawdust requirements be met with finished compost.)

Cubic Yards Sawdust = _____ (lb loss / yr.) x 0.0069 = _____cu. yd. / yr.

Number of additional bin(s) desired by operator for fresh sawdust storage = _____

Summarize Bin Sizes and numbers:

	Primary	Secondary	Compost Storage	Sawdust Storage
Number of Bins				
Size (w x l)				